CLAIMS

What is claimed is:

1 1. A method of managing a shared object in an object-oriented environment, the method

2   comprising the steps of:

3   generating only a single instance of said shared object in response to attempts by a

4   plurality of clients to create an instance of a particular object belonging to a

5   class to which said shared object belongs;

6   a first client of said plurality of clients invoking a first method of said shared object to

7   register an observer object to notify about an event related to execution of a

8   particular operation;

9   each client of said plurality of clients invoking a second method of said shared object

10   to request execution of said particular operation; and

11   when the shared object performs the particular operation requested by the first client,

12   sending a first message to each observer object that has been registered for the

13   particular operation requested by said first client.

1 2. The method of Claim 1, wherein the steps further include sending a

2   second message about another event related to execution of the

3   particular operation requested by the first client to said observer object

4   that was registered by said first client.

1 3. The method of Claim 2, wherein:

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2   the step of each client of said plurality of clients invoking a second method includes

3   said first client invoking said second method to request a first operation that

4   includes a first subtask and a second subtask;

5   wherein the first message to the observer object registered by the first client is sent in

6   response to completing execution of the first subtask; and

7   wherein the second message to the observer object registered by the second client is

8   sent in response to completing execution of the first subtask.

1   4.   The method of Claim 1, further including the step of a first client invoking another

2   method of said shared object to register another observer object about another event

3   related to execution of said first operation; and

4   wherein said other method is different than said first method.

1   5.   The method of Claim 1, further including the step of said shared object creating, for

2   each client of said plurality of clients, a client specific object that stores data

3   associated with said each client.

1   6.   The method of Claim 5, wherein the method further includes invoking a particular

2   method of said client specific object created for said first client that returns

3   information that may be used to access the observer object that was registered by said

4   first client.

1   7.   The method of Claim 5, wherein the steps further include:

2   said shared object invoking a method of said client specific object; and

3   in response to said shared object invoking the method of said client specific object,

4   storing a reference value to the observer object for said first client.

1   8.   The method of Claim 5, wherein the step of invoking the method of said client

2   specific object is performed in response to the attempt by said first client to create an

3   instance of a particular object belonging to a class to which said shared object

4   belongs.

1   9.   The method of claim 1, wherein the steps include:

2   for each client of said plurality of clients, performing the following steps when the

3   shared object performs the particular operation requested by said first client:

4   identifying said each client;

5   determining whether said each client has registered an observer object about

6   the event related to execution of the particular operation requested by

7   said first client; and

8   if said each client has registered an observer object, then sending a first

9   message to said observer object by invoking said second method of

10   said observer object.

1 10.   The method of Claim 1, wherein the step of sending a first message to each observer

2   object that has been registered for the particular operation requested by said first

3   client includes sending a first message to each client of said plurality of clients.

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1   11.   A method of managing a shared object in an object-oriented environment, the method

2   comprising the steps of:

3   generating only a single instance of said shared object in response to attempts by a

4   plurality of clients to create an instance of a particular object belonging to a

5   class to which said shared object belongs;

6   a first client of said plurality of clients invoking a first method of said shared object to

7   register an observer object to notify about an event related to execution of a

8   particular operation;

9   each client of said plurality of clients invoking a second method of said shared object

10   to request execution of said particular operation; and

11   for each client of said plurality of clients, when the shared object performs the

12   particular operation requested by said each first client, sending a first message

13   to each observer object that has been registered for the particular operation

14   requested by said first client.

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